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TITLE: REMOTE CONTROL TRANSMITTER

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ABSTRACT:

PURPOSE: To facilitate a basic key operation of a remote controller by designing a basic operation unit and an extension key unit (2nd key entry section) to be separate modules.

CONSTITUTION: The transmitter is made up of a 1st key entry section 1 in which keys are arranged in a matrix and receiving a scanning signal when a key is depressed, a 2nd key entry section 2 of the similar configuration, a data memory 3 storing a code corresponding to each key, an optical transmission section 4 modulating an infrared ray with, e.g. the PWM(pulse width modulation) based on the received code and emitting the modulated signal, a key discrimination section 5 discriminating the depressed key from a timing of a scanning signal, a power supply section 6 supplying power and consisting of, e.g. series connection of two AAA type batteries and a control section 7 controlling each section.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the remote control transmitter which consists of a basic operation unit and an extended key unit.

[0002]

[Description of the Prior Art] It is very convenient, if the latest electrical machinery and apparatus including AV television system or an air-conditioner are equipped with many functions and you use those functions well. In this case, while it is indispensable to have the remote control which can control those actuation intensively without moving from its seat, need will become still higher from now on. A remote control transmitter (it is called remote control below) transmits an infrared remote control signal towards the device of a location which operated and left the keypad at hand, and operates the target device by remote control.

[0003] An example of the appearance of remote control is shown in drawing 6. If many keys are prepared in the top face of a case corresponding to the function of a device and something presses a key, a predetermined remote control signal will be sent out with infrared radiation from the luminescence aperture of the point of a case. Moreover, the lid (cell lid) of the room which contains a cell is formed in the inferior surface of tongue of the hand section of a case.

[0004] Functional block of the conventional remote control is shown in drawing 5, and actuation of remote control is explained. If the key of the key input section 10 is pressed, the key pressed in the key distinction section 5 will be detected, the code corresponding to said key memorized to data memory 3 will be taken out via a control section 6, and the optical output section 4 will be supplied. This optical output section 4 modulates infrared radiation in said code, and emits a remote control signal in the air. In addition, 11 is the power supply section which supplies power, for example, used the dry cell.

[0005] By the way, as shown in drawing 6, corresponding to the function of a device, many keys are arranged on the top face of a case. However, when an example is taken on television when operating a device for example, as a fundamental actuation key, it is a key with few power-source ON / off keys, channel rise / down keys, sound-volume rise / down keys, etc., and many other keys are extension keys. As compared with an actuation key with those fundamental extension keys, operating frequency is low. However, conventionally, since the fundamental actuation key and the extension key were prepared in one remote control together, there were many whole keys, and when operating remote control, there was a hot problem in search of a required key. Moreover, it had become a cost rise, although one set might be considered as the remote control only for fundamental actuation keys by two sets of remote control and other one set might be made into all KIRIMOKON that prepared all actuation keys at some devices. moreover, \*\*, such as a related device, for example, television, VTR, etc., -- the example which uses [ the example ] remote control of each device [ like ] mutually by the plug and the jack, making circuit connection is proposed by JP,3-43750,Y. In this example, since two sets of the remote control which operates independently will be connected to one, there is a problem of a cost rise. Moreover, by detaching and attaching remote control, the pin of a jack part breaks into a plug, or it is easy to bend, and

a problem is in the dependability of connection.

[0006]

[Problem(s) to be Solved by the Invention] This invention was made in view of the above-mentioned trouble, and it is easy to operate it, and aims at cost offering a cheap remote control transmitter.

[0007]

[Means for Solving the Problem] The first key input section which inputs the signal of the pressed key in order to attain the above-mentioned purpose, The data memory which remembers a suitable code to be this second key input section for every key, It becomes by the optical transmitting section which emits the infrared radiation modulated based on the supplied code, the key distinction section which distinguishes the pressed key, the power source which supplies power, and the control section which controls each part, and enabled it to be intermittent in circuit connection of the second key input section.

[0008] Moreover, while containing the second key input section in the case equipped with the wearing hole, the splicer for circuit connection was prepared in this wearing hole.

[0009] Moreover, while containing the first key input section, data memory, the optical transmitting section, the key distinction section, the power source, and the control section in the case which prepared the heights for fitting, the splicer for making circuit connection was prepared at the tip of heights of this fitting.

[0010] Moreover, it constituted from the second part which formed at least one magnet in the side-face location in which the projection of two or more electric contact is prepared in the first part which established two or more electric contact surfaces for the circuit splicer in the top face of a convex configuration, and formed at least one magnet in the side face of this convex configuration, and the location in which the top face of a convex configuration \*\*\*\*s, and this convex configuration \*\*\*\*s.

[0011] Moreover, the shutter was prepared in the entry of the attachment-and-detachment hole of the case which contained the second key input section.

[0012] Moreover, the power source was established in the case which contained the second key input section.

[0013]

[Function] Since it constituted as mentioned above, while containing the first key input section, data memory, the optical transmitting section, the key distinction section, a power source, and a control section as a basic operation unit in the case which prepared the heights for fitting, the splicer adapting the suction force of the magnet for making circuit connection is prepared at the tip of heights of this fitting. Especially, since only a basic operation key is chosen and it is arranged, actuation can be simply done for a basic operation unit. Moreover, while containing the second key input section in the case equipped with the wearing hole as an extended key unit, the splicer for circuit connection is prepared in this wearing hole. Therefore, if said basic operation unit is equipped with an extended key unit if needed, an extended key can also be used by said object for circuit connection drawing in and suiting mutually, and making circuit connection certainly.

[0014]

[Example] Hereafter, the remote control transmitter by this invention is explained to a detail using drawing. Drawing 1 is the example block diagram of the remote control transmitter by this invention. It is the first key input section which 1 arranges a key in the shape of a matrix, and this key is pressed, and inputs a scanning signal, and 2 is this second key input section. 3 is data memory which memorizes a suitable code for every key. 4 is the optical transmitting section which modulates and emits infrared radiation by PWM (Pulse Density Modulation) based on the supplied code. 5 is the key distinction section which distinguishes the pressed key from the timing of a scanning signal. 6 is a power supply section which supplies power, for example, connects a size AAA battery etc. to 2 serials, and becomes. 7 is a control section which controls each part.

[0015] Drawing 2 is the external view and important section sectional view of a remote control transmitter by this invention. Drawing 2 (b) is an external view and, as for the case, the basic operation unit and the extended key unit have separated separately. Only the fundamental key of the function of a device is arranged, the transmitting aperture which transmits an infrared signal to the point of a case is

prepared in the top face of the case of a basic operation unit, and the lid (cell lid) of the room which contains a cell is formed in the inferior surface of tongue of a case. Moreover, only the key which controls the extension of a device is arranged on the top face of the case of an extended key unit. In drawing 2 (b), two cells which are power sources, and the circuit splicer fixed on the printed circuit board were prepared in the interior of the case of a basic operation unit, and the convex fitting section equipped with the hole which said circuit splicer inserts is prepared in the posterior part of a case. On the other hand, the circuit splicer fixed to the suitable location on a printed circuit board is prepared in the interior of the case of an extended key unit at the opening circles of a case. Moreover, the shutter rotated, opened and closed is attached in the entry of this opening. Drawing 2 (Ha) shows the condition before equipping a basic operation unit with an extended key unit, and the shutter of the entry of opening by the side of an extended key unit is in the condition of having closed.

[0016] Actuation of the remote control transmitter by this invention is explained according to drawing 1 and drawing 2. When performing basic operation only using a basic operation unit When an example is taken on television, for example, as a fundamental actuation key Since keys, such as power-source ON / off key, channel rise / down key, and sound-volume rise / down key, are arranged If the key of the first key input sections 1, such as power-source ON / off key, is pressed, the key pressed in the key distinction section 5 will be detected, the code corresponding to said key memorized to data memory 3 will be taken out via a control section 6, and the optical output section 4 will be supplied. This optical output section 4 is said code, for example, modulates infrared radiation by PWM (Pulse Density Modulation), emits a remote control signal in the air, and transmits.

[0017] Next, when equipping a basic operation unit with an extended key unit and performing extension actuation, for example, when an example is taken on television, as an extension actuation key, there is an adjustment key which changes the brightness and hue of a screen. Push and necessary control are carried out for the adjustment key arranged at the second key input section 2. The actuation which emits a remote control signal in the air, and is transmitted is the same as the case where the above-mentioned basic operation is performed.

[0018] Drawing 3 is drawing showing the example of the circuit splicer of the remote control transmitter by this invention. The first part which the circuit splicer has arranged two or more electric contact surfaces to the point of a convex configuration, and formed every one-piece each a total of two magnets in the both-sides side of this convex configuration, The projection for two or more electric contact for carrying out electrical connection to the electric contact surface of said first part is prepared in the location in which the point of a convex configuration \*\*\*\*s, and it becomes in the second part which formed two magnets in the side-face location in which this convex configuration \*\*\*\*s so that it might become the magnet of the first \*\*\*\*ing part, and the polarity which pays well. In addition, the tabular guide which projects in parallel of at least two sheets may be prepared in the side face of the first part at a circuit splicer so that the location of electric contact may be decided. Moreover, the fitting location of a guide is not limited to the side face of the first part, and does not limit a configuration to tabular, either.

[0019] Drawing 4 is drawing showing other examples of the circuit splicer of the remote control transmitter by this invention. The first part which the circuit splicer has arranged two or more electric contact surfaces to the point of a convex configuration, and formed the magnet of the U character mold of a piece in the both-sides side of this convex configuration in this example, The projection for two or more electric contact for carrying out electrical connection to the electric contact surface of said first part is prepared in the location in which the point of a convex configuration \*\*\*\*s, and it becomes in the second part which formed the magnet of the U character mold of a piece in the side-face location in which this convex configuration \*\*\*\*s so that it might become the magnet of the first \*\*\*\*ing part, and the polarity which pays well. In addition, wiring of the projection the electric contact surface and for electric contact was prepared in the side face of the magnet of a U character mold, for example, uses a printed wired board etc.

[0020]

[Effect of the Invention] As explained above, it is easy to operate this invention and it offers a remote

control transmitter with cheap cost. Therefore, a basic operation unit is used, fundamental actuation is performed simply, a basic operation unit is equipped with an extended key unit if needed, and an extension key can be operated. Moreover, since signal processing, optical transmission, etc. are not prepared in an extended key unit side, manufacturing to a low price is possible. Therefore, there is a merit whose cost can be cut down. Moreover, while being able to perform circuit connection by one-touch in a magnetic suction force by using a circuit splicer, damage on the pin which became a problem in the conventional example is solvable.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the example block diagram of the remote control transmitter by this invention.

[Drawing 2] It is the external view and important section sectional view of a remote control transmitter by this invention.

[Drawing 3] It is drawing showing the example of the circuit splicer of the remote control transmitter by this invention.

[Drawing 4] It is drawing showing other examples of the circuit splicer of the remote control transmitter by this invention.

[Drawing 5] It is functional block of the conventional remote control.

[Drawing 6] It is the external view of the example of the conventional remote control transmitter.

[Description of Notations]

- 1 First Key Input Section
- 2 Second Key Input Section
- 3 Data Memory
- 4 Optical Transmitting Section
- 5 Key Distinction Section
- 6 Power Supply Section
- 7 Control Section
- 10 Key Input Section
- 11 Power Supply Section

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[Translation done.]

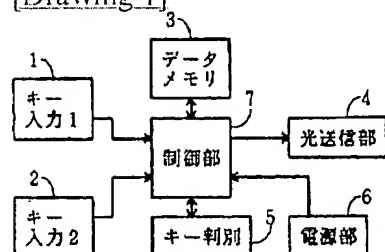
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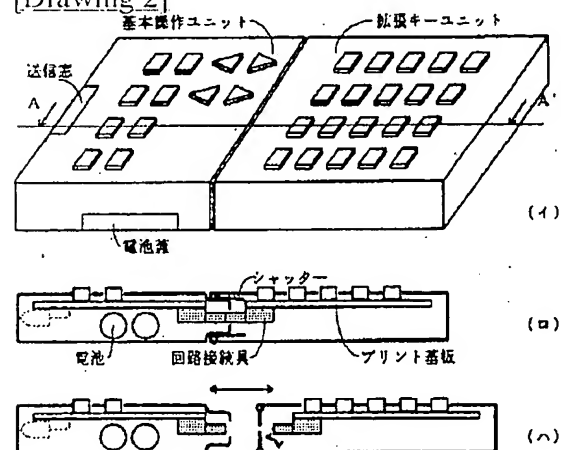
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## DRAWINGS

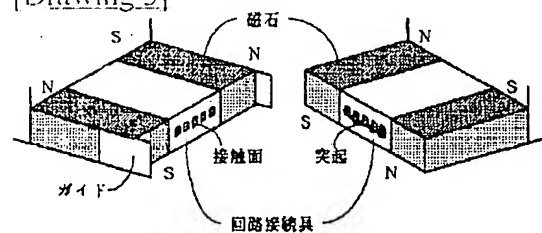
[Drawing 1]



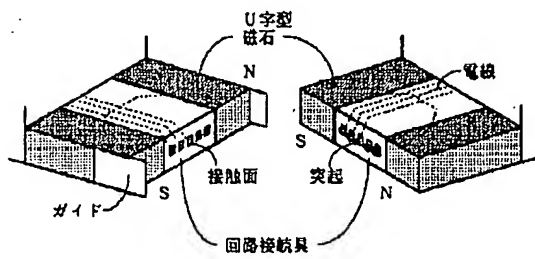
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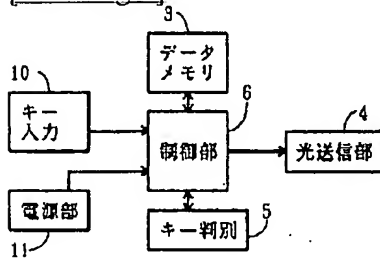
[Drawing 3]



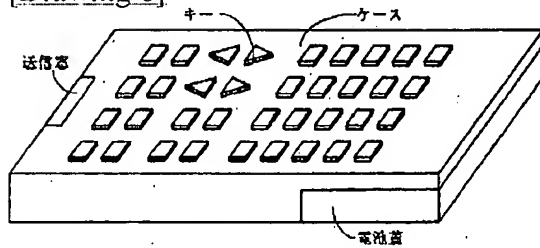
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Translation done.]